FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

April 7 to April 13, 2013 (Week 15)

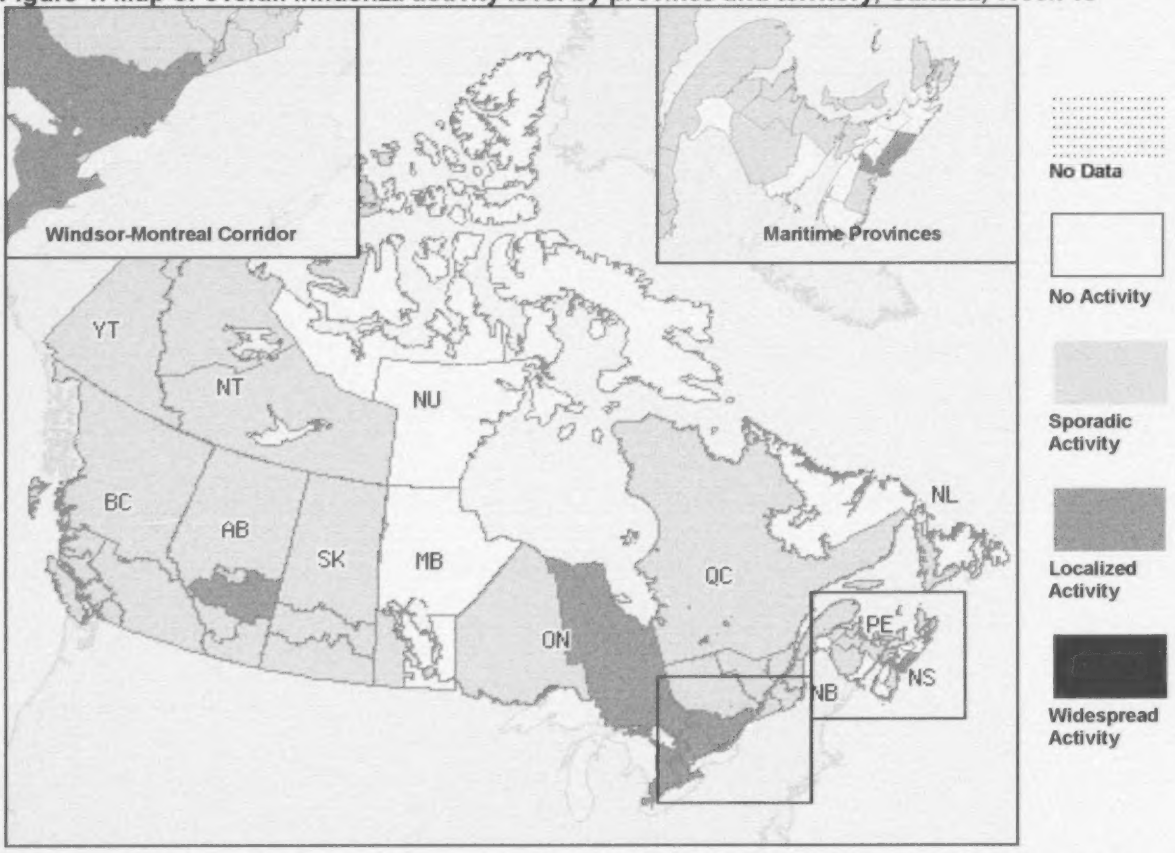
Overall Summary

- The percentage of laboratory tests positive for influenza has been stable at approximately 12% over the past five weeks. Detections of influenza B continued to increase, with influenza B detected in 81.1% of positive specimens in week 15.
- The number of regions reporting widespread or localized activity decreased compared to the previous week.
- The ILI consultation rate decreased and was within the expected range for this time of year.
- Detections of rhinovirus and human metapneumovirus (hMPV) continued to increase slowly while detections of other respiratory viruses were stable or decreasing.

Influenza Activity (geographic spread) and Outbreaks

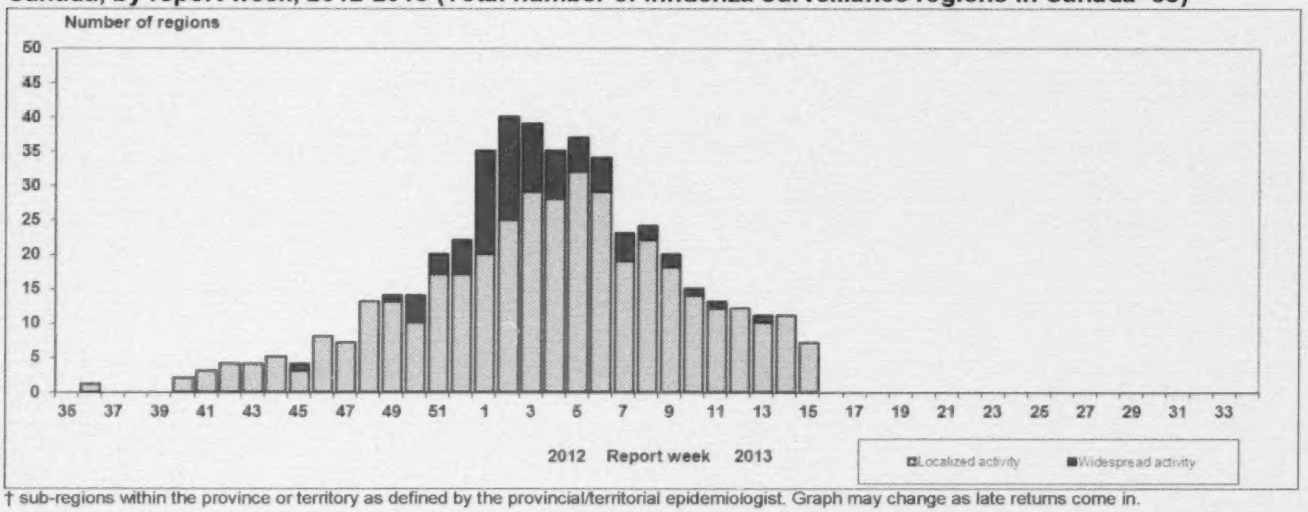
In week 15, no regions reported widespread activity and seven regions [AB(1), ON(5) and NS (1)] reported localized activity. The number of regions reporting widespread or localized activity declined compared to the previous week and continued to follow the overall decline in influenza/ILI activity from the peak in early January (Figures 1 and 2). Seven new influenza outbreaks were reported: four in long-term-care facilities, one in a hospital, and two in other facilities or communities (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 15



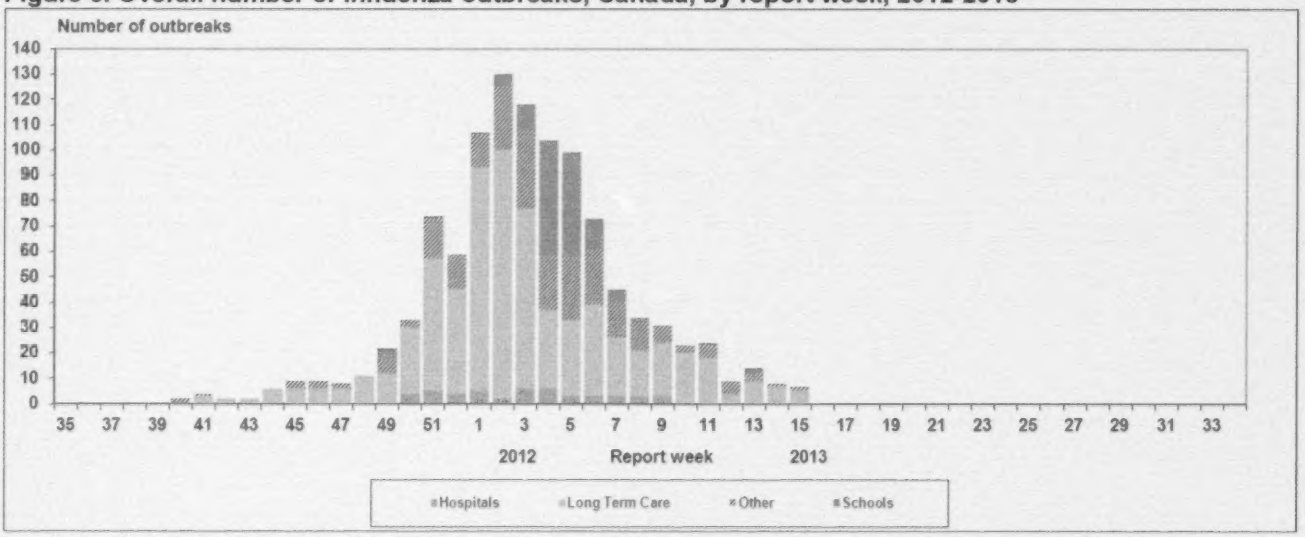
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests increased slightly from 11.4% in week 14 to 12.4% in week 15 (Figure 4). Among the influenza viruses detected in week 15 (n=444), 18.9% were positive for influenza A viruses [of which 32.1% were A(H1N1)pdm09, 13.1% were A(H3), and 54.8% were A(unsubtyped)] (Table 1). Detections of influenza B increased to 81.1% of positive influenza detections in week 15, continuing the upward trend observed since week 03 (Figure 4). Cumulative influenza virus detections by type/subtype to date are as follows: 89.1% influenza A [34.6% A(H3), 4.4% A(H1N1)pdm09 and 61.1% A(unsubtyped)] and 10.9% influenza B (Table 1).

Detailed information on age and type/subtype has been received for 21,821 cases from 26 August 2012 to 23 March 2013 (Table 2). The proportion of cases by age group is as follows: 13.6% <5 years; 9.0% between 5-19 years; 15.5% between 20-44 years; 16.9% between 45-64 years of age; 45.0% ≥65 years.

The percentage of tests positive for RSV decreased to 8.9% in week 15, continuing its decline from a peak in week 08. The percentage of positive tests for rhinovirus continued its slow increase since week 01 to 10.1% in week 15. The percentage of positive tests for hMPV (6.2%) and parainfluenza (4.7%) have also been increasing gradually over the past 8-10 weeks. The percentage of positive tests for coronavirus (2.2%) has been decreasing slowly since week 04 (Figure 5)*.

* For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (April 7 to April 13, 2013)						Cumulative (August 26, 2012 to April 13, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	9	0	3	4	2	20	1900	0	1449	214	237	350
AB	10	0	3	5	2	49	2319	0	1760	415	144	612
SK	1	0	0	1	0	27	828	0	474	73	281	223
MB	1	0	0	0	1	3	654	0	78	10	566	68
ON	21	0	4	11	6	62	8207	0	3768	345	4094	648
QC	18	0	0	1	17	194	9763	0	546	32	9185	1334
NB	8	0	1	3	4	4	1850	0	771	64	1015	25
NS	13	0	0	0	13	1	380	0	165	6	209	4
PE	2	0	0	2	0	0	111	0	76	5	30	1
NL	1	0	0	0	1	0	714	0	152	0	562	15
Canada	**84**	**0**	**11**	**27**	**46**	**360**	**26726**	**0**	**9239**	**1164**	**16323**	**3280**

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (March 17 to March 23, 2013)					Cumulative (Aug. 26, 2012 to March 23, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	12	3	0	9	43	2589	183	843	1563	379
5-19	2	0	0	2	45	1428	64	628	736	538
20-44	19	4	2	13	32	3062	289	1192	1581	319
45-64	16	1	0	15	36	3375	275	1191	1909	315
65+	31	1	4	26	36	9476	102	3583	5791	340
Unknown	1	1	0	0	0	166	20	144	2	0
Total	**81**	**10**	**6**	**65**	**192**	**20096**	**933**	**7581**	**11582**	**1891**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

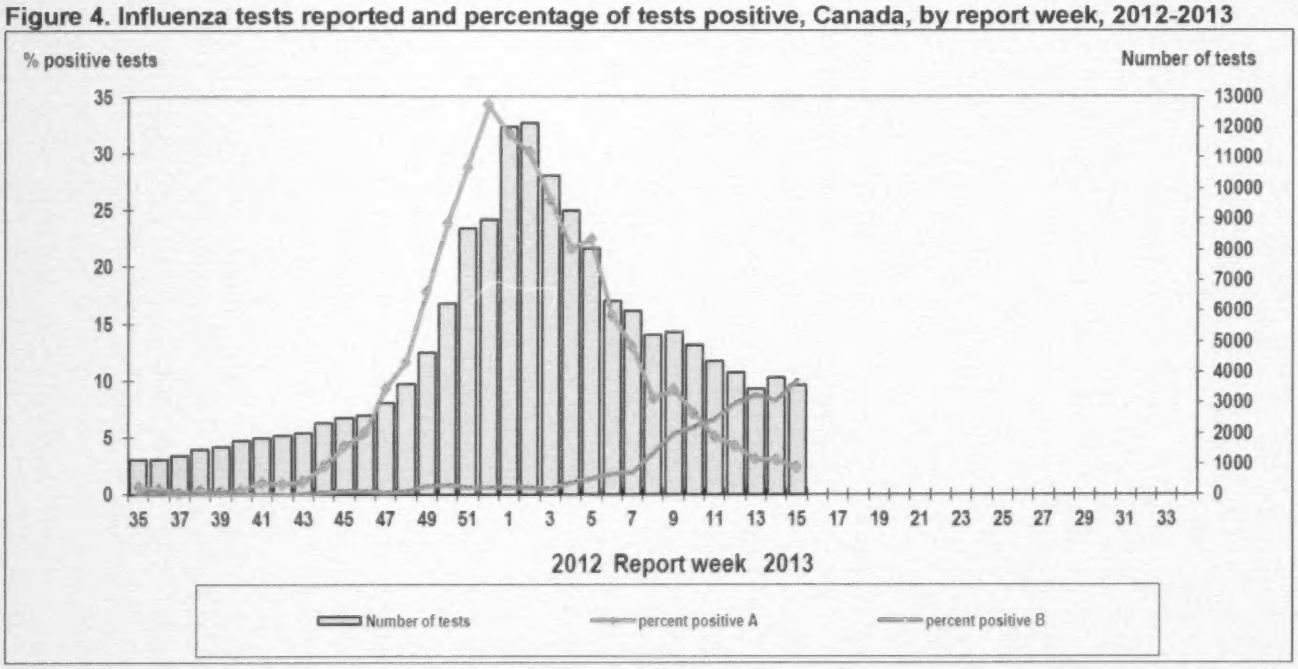
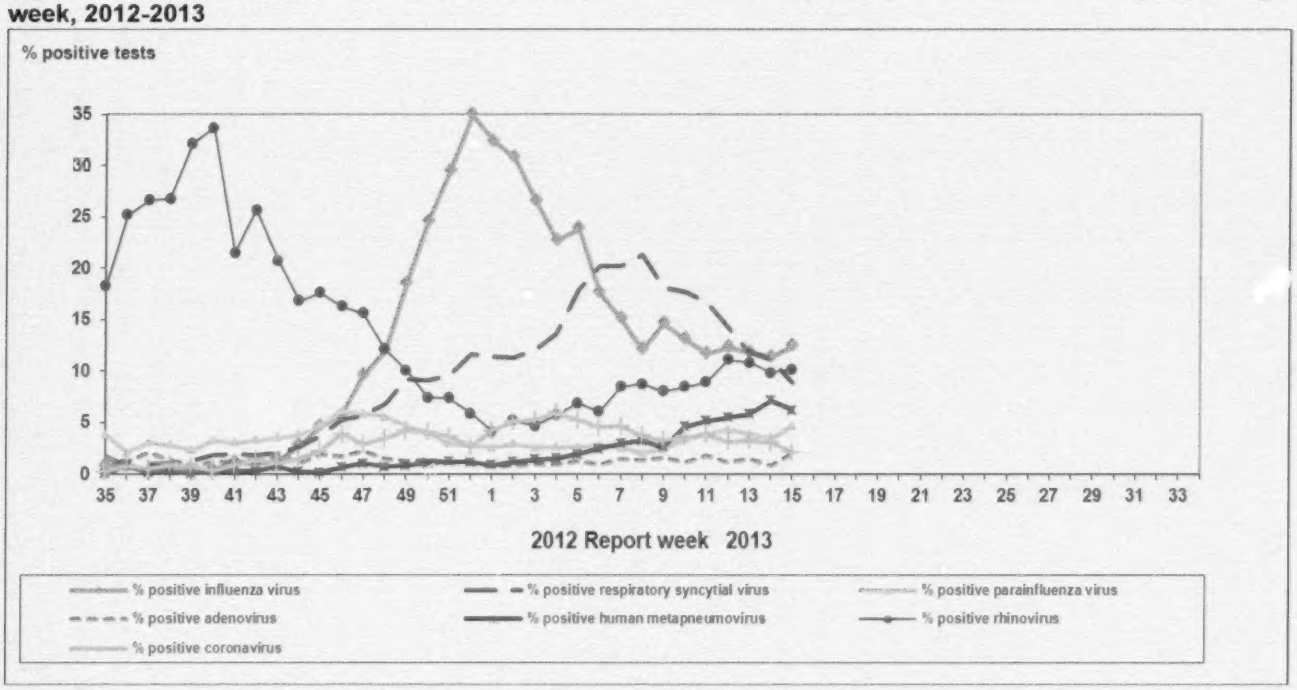


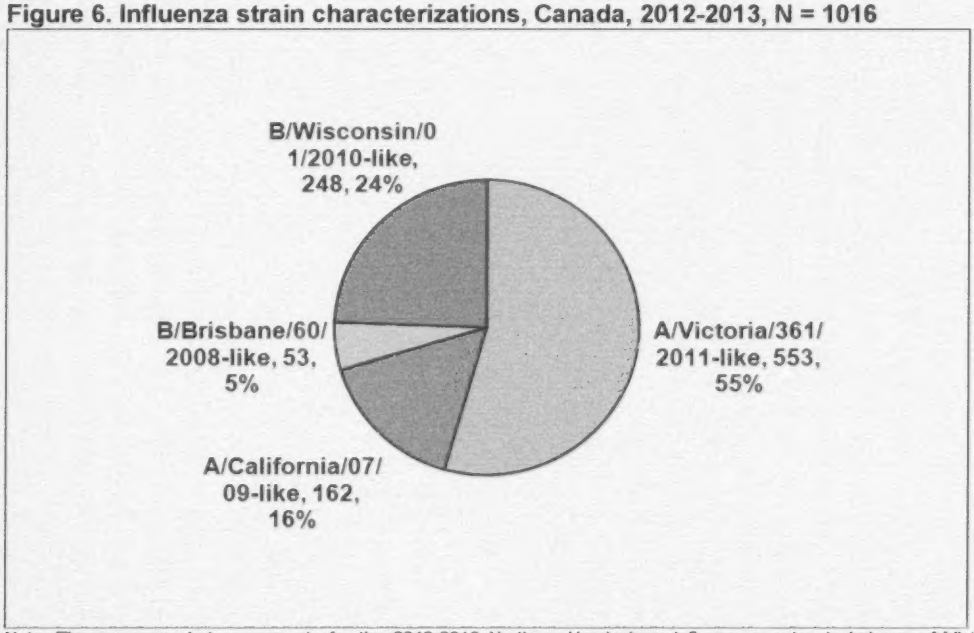
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 1016 influenza viruses. The 553 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 162 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 248 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 53 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 1016



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 941 influenza viruses for resistance to oseltamivir, and 942 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 1029 influenza A viruses were tested for amantadine resistance and all but one were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

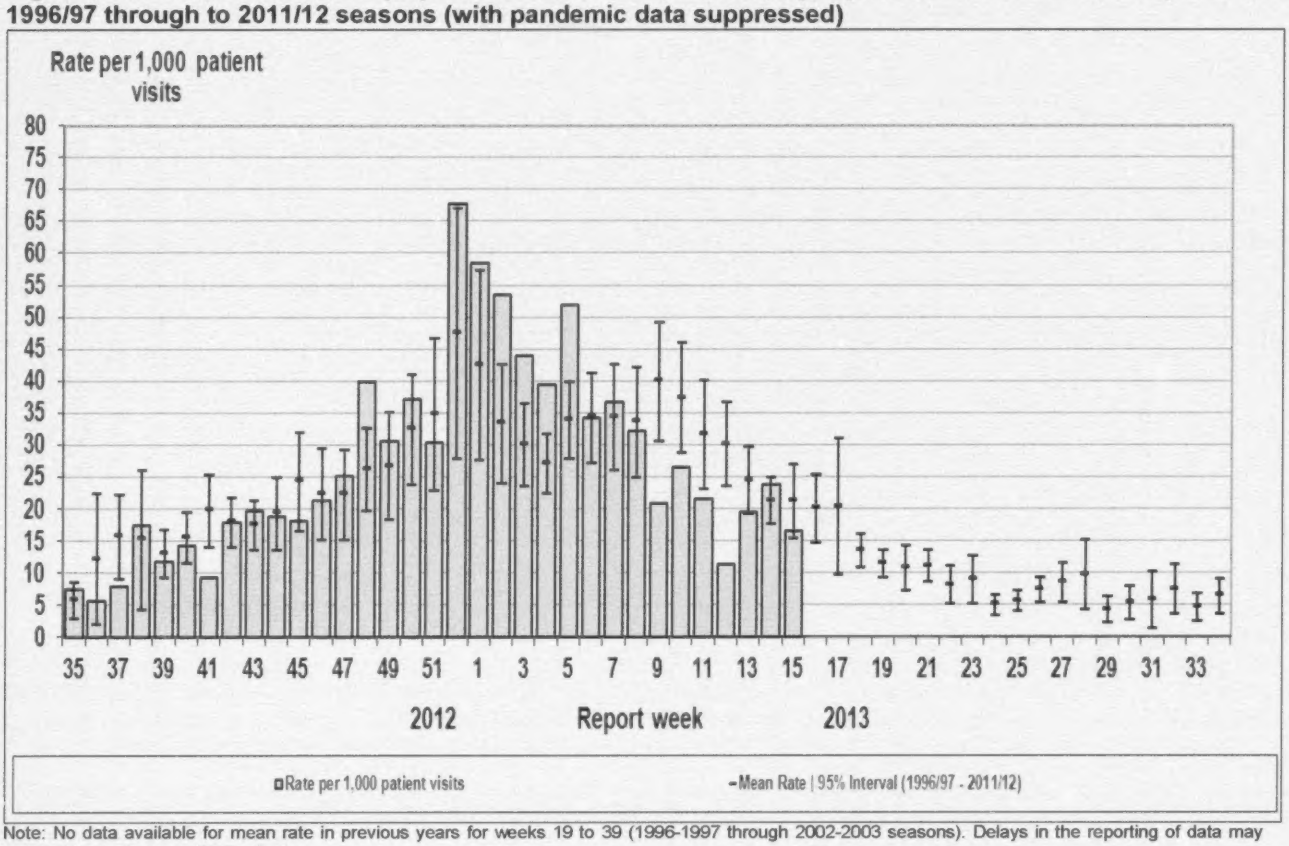
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	528	0	532	0	855	854 (99.9%)
A (H1N1)	156	0	153	0	174	174 (100%)
B	257	0	257	0	NA*	NA*
TOTAL	941	0	942	0	1029	1028 (99.9%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate decreased from 23.8 ILI consultations per 1,000 patient visits in week 14, to 16.4 in week 15 and remains within the expected range (Figure 7). In week 15, the highest consultation rate was observed in children 5 to 19 years of age (28.1/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 15, 12 laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, compared to 15 in week 14. All the cases reported in week 15 were identified with influenza B. The age distribution is as follows: one (8.3%) between 0-5 months, 2 (16.7%) between 6-23 months, 4 (33.3%) 2-4 years of age, 3 (25.0%) 5-9 years of age and 2 (16.7%) 10-16 years of age. One admission to an intensive care unit (ICU) was reported during week 15, a child 6-23 months of age with influenza B.

Since the start of the 2012-13 season, a total of 796 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 615 (77.3%) with influenza A [of which 121 (19.7%) were A(H3N2), 22 (3.6%) were A(H1N1)pdm09 and the remaining 472 were A(unsubtyped); and 181 (22.7%) with influenza B. The distribution of cases by age group is as follows: 148 (18.6%) <6 months of age; 189 (23.7%) age 6-23 months; 227 (28.5%) age 2-4 years; 166 (20.9%) age 5-9 years; and 66 (8.3%) age 10-16 years. Seventy-six (9.5%) of the 796 cases were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)

In week 15, 13 laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations were reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network, compared to 12 in week 14. Seven of the 13 hospitalizations were cases of influenza A(unsubtyped), and six were influenza B. Seven cases were ≥65 years of age, and six were 45-64 years of age. No ICU admissions were reported during the current week. One death was reported, a person ≥65 years of age with influenza A(H1N1)pdm09.

From November 4, 2012 to April 13, 2013, 1,700 influenza-associated adult hospitalizations were reported by the PCIRN-SOS network: 1,565 (92.1%) with influenza A [of which 300 were A(H3N2), 16 were A(H1N1)pdm09, and 1,249 were A(unsubtyped)]; 87 (5.1%) with influenza B, and the type has not been reported for 48 cases. The age distribution of hospitalizations is as follows: 1,176 (69.2%) were ≥65 years of age, 341 (20.1%) were 45-64 years, 175 (10.3%) were 20-44 years, and 8 (0.5%) were <20 years of age. ICU admission was required for 196 hospitalizations; the majority of which were adults ≥65 years of age (119; 60.7%). Of the ICU admissions, 79 (40.3%) had at least one co-morbidity, three (1.5%) had no co-morbidities, and 114 had no information to date. A total of 105 deaths have been reported: 24 with influenza A(H3N2), one with A(H1N1)pdm09, 74 with A(unsubtyped), 5 with influenza B, and one untyped. More than 80% of the deaths (90/105) were in adults ≥65 years of age, 12 (11.4%) were adults 45-64 years of age, and 3 (2.9%) were 20-44 years of age. Forty-seven (44.8%) deaths occurred in individuals who had at least one co-morbidity. Detailed clinical information on co-morbidities is not known for the remaining cases.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In week 15, 91 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*. The majority of cases were influenza A (52.7%). The highest proportion of hospitalisations were in adults ≥65 years of age (37.4%), followed by adults 45-64 years of age (33.0%). Of the 25 cases with available data, four cases were admitted to the ICU: three 45-64 years of age and one 20-44 years of age. No deaths were reported in week 15.

To date this season, 4,341 influenza-associated hospitalizations have been reported, of which 91.9% have been influenza A. Of those subtyped (48.4%), influenza A(H3) was the predominant influenza strain. The cumulative proportion of hospitalizations with influenza B continues to increase (8.1% in week 15). Age information was available for 4,338 cases, and the age distribution is as follows: 2,350 (54.2%) were ≥65 years of age; 737 (17.0%) were 45-64 years of age; 387 (8.9%) were 20-44 years of age; 40 (0.9%) were 15-19 years of age; 186 (4.3%) were 5-14 years; and 638 (14.7%) were 0-4 years of age. Of the 1,157 cases with available data, there have been 184 hospitalisations for which admission to an ICU was required; the highest proportions have been in adults 45-64 years of age, followed by adults ≥65 years of age (36.9% and 33.2%, respectively). To date, 280 deaths have been reported: 232 were adults ≥65 years of age, 31 were adults 45-64 years; 11 were adults 20-44 years, one was a child 5-14 years of age, and 5 were children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

WHO: The most recent WHO surveillance report (12 April 2013) summarizes global influenza surveillance data from week 13 (24 to 30 March 2013). In North America, the peak of influenza activity in Mexico occurred about 2 weeks after the early-January peak in Canada and the United States. Although the United States reported a greater proportion of influenza B this season, both Canada and the US have seen an increase in circulation of influenza B in the later part of the season. Analysis from 12 European countries revealed a broad peak of excess mortality among older adults, starting in early January, comparable with the mortality levels observed during the 2011-2012 season. In northern Africa and the western Asia region, the peak of influenza activity occurred in late February with a predominance of A(H1N1)pdm09. Influenza activity continued to decrease in temperate regions of Asia since peaking at the end of January, although activity in China and the Republic of Korea peaked a few weeks later than in other countries. Influenza A(H3N2) has been the most commonly detected virus in northern Asia this season although in northern China an increasing proportion of A(H1N1)pdm09 has been detected. In tropical regions of Asia, influenza activity was low, with circulation primarily of A(H3N2) and A(H1N1)pdm09 in India and all three types/subtypes in Sri Lanka. In Central America and the Caribbean, influenza activity was similar to recent weeks, with RSV the most commonly detected agent among cases of acute respiratory illness. Countries in Tropical South America reported low numbers of influenza detections. Most countries in tropical areas of Central Africa reported low-level but persistent influenza circulation with all three virus types. Influenza activity in temperate countries of the southern hemisphere is at inter-seasonal levels.
World Health Organization influenza update

United States: No new influenza surveillance update has been published by the CDC since 6 April 2013.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 15, ILI and acute respiratory illness (ARI) consultation rates are below the baseline or at pre-season levels in many countries. Most countries reported low intensity of ILI/ARI activity and a decreasing trend. The percentage of sentinel specimens positive for influenza continues to decline to 27% in week 15. The proportion of influenza B detections has increased from 24% in week 03 to 56% in week 15. Influenza B now dominates in circulation although overall detections of influenza are declining. Among influenza A viruses in week 15, 54% were A(H3N2) and 46% were A(H1N1)pdm09. Since the beginning of the season, 64% of detections from sentinel and non-sentinel sources were influenza A [68% A(H1N1)pdm09 and 32% A(H3N2)] and 36% were influenza B. In week 15, the number of countries reporting a predominance of influenza A circulation continued to decrease, and now includes only Greece, Ireland, the United Kingdom, Belgium, Finland, Italy and some parts of the Russian Federation. Among the 623 A(H1N1)pdm09 viruses tested for resistance to oseltamivir from 12 countries, 13 (2%) were found to contain the H275Y mutation: four were specimens from hospitalized and outpatients not exposed(3) or with unknown(1) exposure to oseltamivir, while the other nine viruses were detected in hospitalized and/or immunocompromised patients receiving oseltamivir treatment. The number of hospitalizations for severe acute respiratory illness (SARI) are declining, in keeping with ILI/ARI consultation rates.
EuroFlu weekly electronic bulletin

Emerging Respiratory Pathogens

Human Avian Influenza

Influenza A(H7N9): Between April 12 and April 19, the WHO reported an additional 49 cases of avian influenza A(H7N9) in eastern China. Of these cases, five were discovered retrospectively. Since March 2013, 87 cases, of which 17 were fatalities, of avian influenza A(H7N9) have been reported from four provinces and two municipalities. The numbers of cases (and deaths) by jurisdiction is as follows: Anhui 3 (1), Henan 3 (0), Jiangsu 21 (3), Zhejiang 27 (2), Beijing 1 (0) and Shanghai 32 (11). More than 1,000 close contacts of confirmed cases are being closely monitored. Some of the confirmed cases had contact with animals or with an animal environment. Investigations into the source and route of transmission are still in progress, but there has been no evidence of ongoing person-to-person spread. WHO is in contact with national authorities and is following the event closely.
PHAC – H7N9 avian influenza
WHO Influenza at the human-animal interface
WHO Disease Outbreak News
WHO Frequently Asked Questions on human infection with influenza A(H7N9)

Human Swine Influenza

No new human cases of infection with swine influenza viruses or variants were reported in week 14.
Centers for Disease Control and Prevention seasonal influenza report

Novel Coronavirus (hCoV-EMC)

No new cases of novel coronavirus (nCoV) have been reported by WHO since 26 March 2013. Since April 2012, 17 laboratory-confirmed cases of nCoV have been identified, including 11 deaths.

PHAC – Coronavirus

WHO – Coronavirus infections

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.